

Atty. Docket No. 13DV-13990/11719 (21635-0043)  
Application No. 10/071,129

#### REMARKS

This application has been reviewed in light of the Office Action of July 30, 2003. Claims 1-20 are pending, and all claims stand rejected. In response, claim 1 is amended; new claim 21 is added; and the following remarks are submitted. Reconsideration of this application, as amended, is requested.

Claim 1 is amended to correct an antecedent basis error that was not noticed previously by Applicant or the Examiner. The third paragraph of the recitation refers to "newly exposed surface of the article substrate", and the present amendment conforms the recitation of the second paragraph to that of the third paragraph. This amendment does not change the scope of claim 1, inasmuch as the correct recitation was already present in the third paragraph of claim 1.

Claims 16-18 are rejected under the doctrine of obviousness-type double patenting in view of claims 14 and 18 of Spitsberg U.S. Patent 6,551,423. Applicant traverses this ground of rejection.

The first step after furnishing the nickel-base superalloy in claim 14 of the Spitsberg patent is "depositing a first layer comprising platinum..."

Claim 14 of the Spitsberg patent recites in part "depositing a second layer comprising aluminum contacting an upper surface of the first layer" [emphasis added]. The present claim 16 recites in part: "depositing a subsequent aluminum-containing coating onto the article substrate". That is, the deposition of the second layer 76 containing aluminum in the Spitsberg patent is onto the upper surface of the first layer 70, see Figure 3, boxes 56 and 58, where layer 76 is deposited on the layer 70, not on the substrate 32. Compare this sequence with Figures 3-4 of the present application, where the initial aluminum-containing coating 54 is removed entirely to expose a new substrate surface 62,

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and then the subsequent aluminum-containing coating 70 is deposited onto the substrate 62, not onto any of the conditioning material 56, which was removed entirely. In short, claim 14 of the Spitsberg patent teaches depositing the second layer comprising aluminum onto a remaining portion of the thickness of the first layer 70 (not on the substrate 32), and claim 16 recites that the subsequent aluminum-containing coating is deposited onto the article substrate 50.

The first step after furnishing the nickel-base superalloy in claim 16 of the present application is “depositing a conditioning material”. The present claim 17 recites that, “the step of depositing the conditioning material includes the step of depositing an initial aluminum-containing coating. Certainly the step of “depositing a first layer comprising platinum...” cannot make obvious the step of “depositing an initial aluminum-containing coating.

There are further steps in claim 14 of the Spitsberg patent of “removing material from an exposed surface of the first layer” and “depositing a second layer comprising aluminum contacting an upper surface of the first layer”. That is, the second layer is deposited on the remaining portion of the first layer, not on any portion of the substrate. The present claim 18 recites, “the step of removing the conditioning material includes the step of exposing a newly exposed surface of the article substrate”, which is followed by “depositing a subsequent aluminum-containing coating onto the article substrate”. That is, the subsequent aluminum-containing coating is deposited onto the article substrate, not onto the upper surface of the first layer as in claim 14 of the Spitsberg patent.

This analysis has focused on claim 14 of the Spitsberg patent, but claim 18 is similar. In claim 18 of Spitsberg, the second layer comprising aluminum is deposited on “an upper surface of the first layer”, not on the substrate as in claim 16 of the present application.

Applicant has demonstrated that the present claims 16-18 are not obvious in light of

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claims 14 and 18 of the Spitsberg '423 patent, and in fact Spitsberg teaches directly away from the limitations of the present claims 16-18.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Claim 4 is objected to as being of improper dependent form. Applicant traverses this rejection.

Claim 1 recites in part: "removing the initial-coating additive zone and the initial-coating diffusion zone to expose a newly exposed surface of the article substrate that is substantially without cold work and residual stress".

Claim 4 recites in part: "removing the initial-coating additive zone and the initial-coating diffusion zone without introducing cold work into the article substrate".

These claims differ in that claim 1 says that any approach is permitted as long as there is no cold work at the end of the removal process—claim 1 permits, for example, a removal process in which cold work is first introduced into the article substrate, and the cold worked substrate material is thereafter removed as by acid etching or there is a stress relieving (as in the present claim 14, for example). Claim 4 recites that no cold work may be introduced at all. Claim 4 is definitely narrower than claim 1.

Applicant asks that the Examiner reconsider and withdraw this ground of objection.

Claims 1-4, 7-11, and 15-20 are rejected under 35 U.S.C. § 102 as anticipated by Rigney U.S. Patent 6,502,304. Applicant traverses this ground of rejection.

The following principle of law applies to Section 102 rejections. MPEP 2131 provides: "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. The identical invention must be shown in as complete detail as is contained in the ... claim. The elements

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must be arranged as required by the claim..." [citations omitted] This is in accord with the decisions of the courts. Anticipation under Section 102 requires 'the presence in a single prior art disclosure of all elements of a claimed invention arranged as in that claim.' Carella v. Starlight Archery, 231 USPQ 644, 646 (Fed. Cir., 1986), quoting Panduit Corporation v. Dennison Manufacturing Corp., 227 USPQ 337, 350 (Fed. Cir., 1985)

Thus, identifying a single element of the claim, which is not disclosed in the reference, is sufficient to overcome a Section 102 rejection.

All of the claims recite:

"the article being susceptible to the formation of the secondary reaction zone if heated to an elevated SRZ reaction temperature for an SRZ reaction period of time" [quote from claim 1]

or the like. Rigney discloses a number of alloy compositions (col. 4, lines 10-12), some of which are SRZ-susceptible and some of which are not. The disclosure of Rigney put in terms of "slurry can contain" and the like does not identify the alloys to which the disclosure applies.

Claim 1 recites in part:

"removing the initial-coating additive zone and the initial-coating diffusion zone to expose a newly exposed surface of the article substrate that is substantially without cold work and residual stress".

Claim 8 has a similar recitation.

Rigney has no such disclosure at the locations referenced in the explanation of the rejection or elsewhere. The terms and concepts "initial-coating additive zone" and "initial-coating diffusion zone" are not mentioned at all. Rigney does not require the removal of

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material, such as set forth in the claims of the present invention. Rather Rigney teaches restoration of a coating if such coating is removed. The material removal, if it occurs at all, (col. 8, lines 3-7) is by machining, which does introduce cold work and residual stress. Rigney also does not require exposure of a new article substrate surface.

Claim 1 further recites in part:

“depositing a subsequent aluminum-containing coating onto the newly exposed surface of the article substrate, the subsequent aluminum-containing coating including a subsequent-coating additive zone and a subsequent-coating diffusion zone”.

Claim 8 has a similar recitation.

Rigney has no such disclosure, either that a subsequent aluminum-containing coating is deposited onto a newly exposed surface of the article substrate after the diffusion zone is removed, or that the subsequent aluminum-containing coating includes a subsequent-coating additive zone and a subsequent-coating diffusion zone.

Claim 8 recites in part:

“an initial-coating additive zone and an initial-coating diffusion zone that are substantially free of platinum and palladium

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“a subsequent-coating additive zone and a subsequent-coating diffusion zone that are substantially free of platinum and palladium”

Rigney discloses that platinum and/or palladium are present in the initial coating (col. 6, lines 9-10) and the later coating (col. 8, lines 36-38). At no location in Rigney is there any disclosure that both an initial coating and a subsequent coating are substantially

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free of platinum and palladium, which are the claim limitations.

Claim 8 further recites in part:

“removing the initial-coating additive zone and the initial-coating diffusion zone”.

Rigney has no such disclosure, see the discussion above regarding claim 1.

Claim 16 recites in part:

“depositing a conditioning material onto a surface of the article substrate, and thereafter  
removing the conditioning material from the article substrate,”.

Rigney has no such disclosure.

Claim 16 further recites in part:

“depositing a subsequent aluminum-containing coating onto the article substrate, the subsequent aluminum-containing coating including a subsequent-coating additive zone and a subsequent-coating diffusion zone”.

Rigney has no such disclosure, either that a subsequent aluminum-containing coating is deposited onto the article substrate, or that the subsequent aluminum-containing coating includes a subsequent-coating additive zone and a subsequent-coating diffusion zone.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location

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in Rigney where the limitations are disclosed. For example, the explanation of the rejection found at page 4 of the Office Action does not address the locations where the coatings are applied, but these locations are recited in the claims.

Claims 1-4, 6, 7, and 16-20 are rejected under 35 U.S.C. § 102 over Spitsberg U.S. Patent 6,551,423. Applicant traverses this ground of rejection.

The Spitsberg patent teaches depositing a second layer comprising aluminum contacting an upper surface of the first layer. The presently rejected claims recite in part: “depositing a subsequent aluminum-containing coating onto the article substrate” [quote from claim 16, and claim 1 has a similar limitation]. That is, the deposition of the second layer 76 containing aluminum in the Spitsberg patent is onto the upper surface of the first layer 70, see Figure 3, boxes 56 and 58, where layer 76 is deposited on the layer 70, not on the substrate 32. Compare this sequence with Figures 3-4 of the present application, where the initial aluminum-containing coating 54 is removed entirely to expose a new substrate surface 62, and then the subsequent aluminum-containing coating 70 is deposited onto the substrate 62, not onto any of the conditioning material 56, which was removed entirely. In short, claim 14 of the Spitsberg patent teaches depositing the second layer comprising aluminum onto a remaining portion of the thickness of the first layer 70 (not on the substrate 32), and the present claims recite that the subsequent aluminum-containing coating is deposited onto the article substrate 50.

There are further steps taught in the Spitsberg patent of “removing material from an exposed surface of the first layer” and “depositing a second layer comprising aluminum contacting an upper surface of the first layer”. That is, the second layer is deposited on the remaining portion of the first layer, not on any portion of the substrate. The present claims recite that the step of removing the conditioning material includes the step of exposing a newly exposed surface of the article substrate, which is followed by depositing a subsequent aluminum-containing coating onto the article substrate. That is, the subsequent aluminum-containing coating is deposited onto the article substrate, not onto the upper

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surface of the first layer as in the Spitsberg patent.

Claim 1 recites in part:

“removing the initial-coating additive zone and the initial-coating diffusion zone to expose a newly exposed surface of the article substrate that is substantially without cold work and residual stress”.

Spitsberg has no such disclosure at the locations referenced in the explanation of the rejection or elsewhere. The terms “initial-coating additive zone” and “initial-coating diffusion zone” are not mentioned at all. The material removal (col. 8, lines 3-7) is by machining, which does introduce cold work and residual stress.

Claim 1 further recites in part:

“depositing a subsequent aluminum-containing coating onto the newly exposed surface of the article substrate, the subsequent aluminum-containing coating including a subsequent-coating additive zone and a subsequent-coating diffusion zone”.

Spitsberg has no such disclosure, either that a subsequent aluminum-containing coating is deposited onto a newly exposed surface of the article substrate, or that the subsequent aluminum-containing coating includes a subsequent-coating additive zone and a subsequent-coating diffusion zone.

Claim 16 recites in part:

“depositing a conditioning material onto a surface of the article substrate, and thereafter  
removing the conditioning material from the article substrate;”.



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Spitsberg has no such disclosure.

Claim 16 further recites in part:

“depositing a subsequent aluminum-containing coating onto the article substrate, the subsequent aluminum-containing coating including a subsequent-coating additive zone and a subsequent-coating diffusion zone”.

Spitsberg has no such disclosure, either that a subsequent aluminum-containing coating is deposited onto the article substrate, or that the subsequent aluminum-containing coating includes a subsequent-coating additive zone and a subsequent-coating diffusion zone.

The first step after furnishing the nickel-base superalloy in claim 16 of the present application is “depositing a conditioning material”. The present claim 17 recites that, “the step of depositing the conditioning material includes the step of depositing an initial aluminum-containing coating. Certainly the step of “depositing a first layer comprising platinum...” cannot make obvious the step of “depositing an initial aluminum-containing coating.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Spitsberg where the limitations are disclosed. For example, the explanation of the rejection found at pages 4-5 of the Office Action does not address the locations where the coatings are applied, but these locations are recited in the claims.

Claims 1, 4-8, 11-13, and 15-18 are rejected under 35 U.S.C. § 102 over Connor publication U.S. 2003/0021892A1. Applicant traverses this ground of rejection.

The explanation of the rejection contains a factual error that should be corrected if

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the rejection is maintained. The explanation refers to “removing the initial coating...” In fact, only part of the initial coating is removed. Only the “coating outer portion” is removed, see para. [0009] and [0025] of Connor. The diffusion zone, which is part of the initial coating, is not removed.

Claim 1 recites in part:

“removing the initial-coating additive zone and the initial-coating diffusion zone to expose a newly exposed surface of the article substrate”.

Claim 8 has a similar recitation.

Connor has no such disclosure at the locations referenced in the explanation of the rejection or elsewhere. Connor clearly states, paragraph [0009] that the processing exposes “a surface of the diffusion zone”. See also paragraphs [0025] and [0026]. That is, the initial-coating diffusion zone is not removed.

Claim 1 further recites in part:

“depositing a subsequent aluminum-containing coating onto the newly exposed surface of the article substrate, the subsequent aluminum-containing coating including a subsequent-coating additive zone and a subsequent-coating diffusion zone”.

Claim 8 has a similar recitation.

Connor has no such disclosure that a subsequent aluminum-containing coating is deposited onto a newly exposed surface of the article substrate exposed after the diffusion zone is removed.

Claim 16 recites in part:

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“depositing a conditioning material onto a surface of the article substrate, and thereafter removing the conditioning material from the article substrate;”.

Connor has no such disclosure. If the “conditioning material” is said to be the aluminum deposited initially, that material is not removed.

Claim 16 further recites in part:

“depositing a subsequent aluminum-containing coating onto the article substrate, the subsequent aluminum-containing coating including a subsequent-coating additive zone and a subsequent-coating diffusion zone”.

Connor has no such disclosure, either that a subsequent aluminum-containing coating is deposited onto the article substrate, or that the subsequent aluminum-containing coating includes a subsequent-coating additive zone and a subsequent-coating diffusion zone.

Applicant asks that the Examiner reconsider and withdraw this ground of rejection. If the rejection is maintained, Applicant asks that the Examiner indicate the precise location in Connor where the limitations are disclosed. For example, the explanation of the rejection found at pages 5-6 of the Office Action does not address the locations where the coatings are applied, but these locations are recited in the claims.

Claim 14 is rejected under 35 U.S.C. § 103 over Connor in view of Chen U.S. patent 6,355,116. Applicant traverses this ground of rejection.

The following principle of law applies to all Section 103 rejections. MPEP 2143.03 provides “To establish prima facie obviousness of a claimed invention, all claim limitations

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must be taught or suggested by the prior art. In re Royka, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). All words in a claim must be considered in judging the patentability of that claim against the prior art. In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970).” [emphasis added] That is, to have any expectation of rejecting the claims over a single reference or a combination of references, each limitation must be taught somewhere in the applied prior art. If limitations are not found in any of the applied prior art, the rejection cannot stand. In this case, the applied prior art references clearly do not arguably teach some limitations of the claims.

Connor has been discussed previously. Connor teaches that the diffusion zone of the initial coating is not removed, see para. [0009].

Chen has exactly the same teaching. See the Abstract, “...contacting the coated superalloy article in a preselected chemical stripping solution...without substantially affecting the diffusion layer underlying the outer aluminide layer.” See also col. 4, lines 45-47 (“The diffusion layer underlying the outer additive layer is substantially unaffected.”) and claim 1 at col. 9, lines 17-18.

Claim 14 depends from claim 8. Connor does not teach the limitations of claim 8 (e.g., the removal of the diffusion zone), and Chen reinforces the position of Connor by also teaching directly opposite to the claimed limitation.

Claim 14 recites in part:

“removing the initial-coating additive zone and the initial-coating diffusion zone”.

Both Connor and Chen teach exactly to the contrary, because they both require that the diffusion zone remain.

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Applicant asks that the Examiner reconsider and withdraw this ground of rejection.

Applicant submits that the application is now in condition for allowance, and requests such allowance.

Respectfully submitted,  
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